

Appl. No. 10/849,954
Paper dated December 22, 2005
Reply to Office Action dated November 15, 2005

Amendments to the Claims:

This listing of claims will replace all prior listings of claims in the application.

Listing Of Claims:

Claim 1 (currently amended): An ink jet printing apparatus to form an image by using a print head capable of ejecting ink from its ejection openings, the printing apparatus comprising:

wiping means for wiping an ejection opening formed face of the print head in which the ejection openings are formed;

preliminary ejection means for ejecting ink not contributing to an image forming from the ejection openings of the print head; and

modifying means for changing, according to event history information of the print head, the number of ink droplets to be ejected by the preliminary ejection means following a wiping operation of the wiping means,

wherein the event history information of the print head is a cumulative printed dot number representing a cumulative number of ink droplets ejected from the print head and wherein the modifying means increases the number of ink droplets to be ejected by the preliminary ejection means as the cumulative printed dot number increases.

Claims 2-6 (canceled).

Claim 7 (currently amended): An ink jet printing apparatus according to claim 6 to form an image by using a print head capable of ejecting ink from its ejection openings, the printing apparatus comprising:

Appl. No. 10/849,954
Paper dated December 22, 2005
Reply to Office Action dated November 15, 2005

wiping means for wiping an ejection opening formed face of the print head in which the ejection openings are formed;

preliminary ejection means for ejecting ink not contributing to an image forming from the ejection openings of the print head; and

modifying means for changing, according to event history information of the print head, the number of ink droplets to be ejected by the preliminary ejection means following a wiping operation of the wiping means,

wherein the event history information of the print head is a cumulative time in which the print head is mounted in the ink jet printing apparatus and wherein the modifying means increases the number of ink droplets to be ejected by the preliminary ejection means as the cumulative print head mounting time increases.

Claim 8 (canceled).

Claim 9 (currently amended): An ink jet printing apparatus ~~according to claim 8 to~~ to form an image by using a print head capable of ejecting ink from its ejection openings, the printing apparatus comprising:

wiping means for wiping an ejection opening formed face of the print head in which the ejection openings are formed;

preliminary ejection means for ejecting ink not contributing to an image forming from the ejection openings of the print head; and

modifying means for changing, according to event history information of the print head, the number of ink droplets to be ejected by the preliminary ejection means following a wiping operation of the wiping means,

Appl. No. 10/849,954
Paper dated December 22, 2005
Reply to Office Action dated November 15, 2005

wherein the event history information of the print head is a time which elapses from a wiping operation of the wiping means to a start of a printing operation on a printing medium and wherein the modifying means decreases the number of ink droplets to be ejected by the preliminary ejection means as the elapsed time increases.

Claim 10 (original): An ink jet printing apparatus according to claim 1, further comprising:

memory means for storing the event history information of the print head; wherein the modifying means changes, according to the event history information stored in the memory means, the number of ink droplets to be ejected by the preliminary ejection means following the wiping operation of the wiping means.

Claim 11 (currently amended): An ink jet printing apparatus according to claim 1 to form an image by using a print head capable of ejecting ink from its ejection openings, the printing apparatus comprising:

wiping means for wiping an ejection opening formed face of the print head in which the ejection openings are formed;

preliminary ejection means for ejecting ink not contributing to an image forming from the ejection openings of the print head; and

modifying means for changing, according to event history information of the print head, the number of ink droplets to be ejected by the preliminary ejection means following a wiping operation of the wiping means,

wherein the event history information is information related to a degradation of repellency of the ejection opening formed face of the print head.

Appl. No. 10/849,954
Paper dated December 22, 2005
Reply to Office Action dated November 15, 2005

Claim 12 (canceled).

Claim 13 (currently amended): A print head recovery method for performing a recovery operation to maintain an ink ejection performance of a print head in good condition, the print head being capable of ejecting ink from its ejection openings, the print head recovery method comprising the steps of:

using wiping means for wiping an ejection opening formed face of the print head in which the ejection openings are formed and preliminary ejection means for ejecting ink not contributing to an image forming from the ejection openings of the print head; and

changing, according to event history information of the print head, the number of ink droplets to be ejected by the preliminary ejection means following a wiping operation of the wiping means.

wherein the event history information of the print head is a cumulative printed dot number representing a cumulative number of ink droplets ejected from the print head and wherein the step of changing the number of ink droplets to be ejected comprises increasing the number of ink droplets to be ejected by the preliminary ejection means as the cumulative printed dot number increases.

Claim 14 (new): An ink jet printing apparatus according to claim 7, further comprising:

memory means for storing the event history information of the print head; wherein the modifying means changes, according to the event history information stored in the memory means, the number of ink droplets to be ejected by the preliminary ejection means following the wiping operation of the wiping means.

Appl. No. 10/849,954
Paper dated December 22, 2005
Reply to Office Action dated November 15, 2005

Claim 15 (new): An ink jet printing apparatus according to claim 9, further comprising:

memory means for storing the event history information of the print head;
wherein the modifying means changes, according to the event history information stored in the memory means, the number of ink droplets to be ejected by the preliminary ejection means following the wiping operation of the wiping means.

Claim 16 (new): An ink jet printing apparatus according to claim 11, further comprising:

memory means for storing the event history information of the print head;
wherein the modifying means changes, according to the event history information stored in the memory means, the number of ink droplets to be ejected by the preliminary ejection means following the wiping operation of the wiping means.

Claim 17 (new): A print head recovery method for performing a recovery operation to maintain an ink ejection performance of a print head in good condition, the print head being capable of ejecting ink from ejection openings, the print head recovery method comprising:

wiping an ejection opening formed face of the print head in which the ejection openings are formed;

ejecting ink not contributing to an image forming from the ejection openings of the print head; and

changing, according to event history information of the print head, the number of ink droplets to be ejected following wiping.

Appl. No. 10/849,954
Paper dated December 22, 2005
Reply to Office Action dated November 15, 2005

wherein the event history information of the print head is a cumulative time in which the print head is mounted in the ink jet printing apparatus and wherein the changing step increases the number of ink droplets to be ejected as the cumulative print head mounting time increases.

Claim 18 (new): A print head recovery method for performing a recovery operation to maintain an ink ejection performance of a print head in good condition, the print head being capable of ejecting ink from ejection openings, the print head recovery method comprising:

wiping an ejection opening formed face of the print head in which the ejection openings are formed;

ejecting ink not contributing to an image forming from the ejection openings of the print head; and

changing, according to event history information of the print head, the number of ink droplets to be ejected following wiping,

wherein the event history information of the print head is a time which elapses from a wiping to a start of a printing operation on a printing medium and wherein the changing step decreases the number of ink droplets to be ejected as the elapsed time increases.

Claim 19 (new): A print head recovery method for performing a recovery operation to maintain an ink ejection performance of a print head in good condition, the print head being capable of ejecting ink from ejection openings, the print head recovery method comprising:

wiping an ejection opening formed face of the print head in which the ejection openings are formed;

ejecting ink not contributing to an image forming from the ejection openings of the print head; and

Appl. No. 10/849,954
Paper dated December 22, 2005
Reply to Office Action dated November 15, 2005

changing, according to event history information of the print head, the number of ink droplets to be ejected following wiping,

wherein the event history information is information related to a degradation of repellency of the ejection opening formed face of the print head.